Buffering Protective Handheld Controller

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention is related to a handheld controller, especially a configuration that provides buffering protection.

2. Description of the Related Art

Current handheld controllers use plastic material to make the touch buttons on the main unit. However, under a long period of pressing time, the rigid plastic material around the button makes the user feel discomfort due to an opposite force. Usually this results in ache, blistering, callus, or finger deformation, as the worst. Besides, because the handheld part of the main unit is made of injection molded ABS or rigid plastics, the user feels discomfort at the holding hands. Therefore, the comfortability of current handheld controller needs to be improved.

SUMMARY OF THE INVENTION

The inventor realized the need of an improved handheld controller in comfortability and invented a buffering protective handheld controller.

The main objective of the invention is to provide a handheld controller that provides buffering protection. Mainly, it provides a buffering protective configuration for direction button and a number of functional buttons on one side

of the main unit. The user is allowed to have greater touch area and more comfortability when pressing the button. Especially, under a long period of button-pressing time, the user has finger contact with surrounding buffering devices to reduce pressure. Therefore, the invention can provide fatigue reduction, blistering prevention and benefits like finger protection from callus and deformation.

Another objective of the invention is to provide a buffering protective handheld controller which main unit has the handheld base in a hollow shape and enclosed by a sticking soft pad with a proper size. Thus, it can provide a cushion air-bag effect to fit the user's palm in any shape and any size. Particularly, because the user can hold the unit with a firm grasp by fingers, the grasping force is significantly minimized during use. The invention further provides the handheld controller with the most grasping comfort.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is an illustration of the appearance of the invention.

Figure 2 is an illustration of the A-A crossectional view of the invention.

Figure 3 is an illustration of the B-B crossectional view of the invention.

Figure 4 is an illustration of the crossectional view of another buffering device for the functional button of the present invention.

Figure 5 is an illustration of the C-C crossectional view of the invention.

Figure 6 is an illustration of the side view of the base of the handheld main unit for the present invention.

Figure 7 is an illustration of the top view of the base of the handheld main unit for the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Please refer to Figure 1. The buffering protective handheld controller in the present invention is mainly to provide a buffering protective configuration for direction button **2** and a number of functional buttons **3** on one side of the main unit **1**.

As shown in Figure 2, the surface of the directional buttons **2** is covered by an elastic ring **22**, which is a layer of soft protective pad **23**. Further, the bottom of the elastic ring **22** is held by a number of buffering devices **24**. The buffering devices **24** can be flexible rubber, spring...etc. to reduce holding pressure (a spring in the Figure). A number of molded axles **25** at the bottom connect with an elastic pad **26**. Thus, the elastic ring **22** is allowed to move around the top of a slot **27** and avoids jumping off the main unit **1**.

When the user presses the directional button **2** for direction control, the user can acquire better comfortability by direct hand pressing on the protective pad **21**

that covers the directional buttons **2**. Especially, before the user's hand presses the directional buttons **2** to the bottom, it feels the touch on the protective pad **23** on the elastic ring **22** around the directional buttons **2**. This not only provides a greater touch area but also pressure reduction by a multiple sets of buffering devices **24** at the bottom of the elastic ring **22** and cushion action on a number of axles **25** and washers **26**. In this way, the user is under a multiple protection from top to bottom, which includes the protective pad **21** on top of the directional button **2**, the elastic ring **22** moving around in the middle to reduce pressure, and bottom cushion composed of buffering devices **24**, axles **25** and washers **26**. Such a handheld controller not only has the most comfortability but also reduced holding pressure. Furthermore, the invention can provide fatigue reduction, blistering prevention and benefits like finger protection from callus and deformation.

As shown in Figure 3 and Figure 4, the multiple number of functional buttons **3** have a buffering device, which can be an elastic silicone bushing **31** (as shown in Figure 3). On the top of the bushing **31**, a through-hole **311** of a height h is to incorporate the functional button **3**. By increasing the through-hole height, we can increase the pressure reduction for the functional button **3**. Or the buffering device can be a hollow silicone elastic pin **32** (as shown in Figure 4), which connects to the bottom of functional buttons **3** against the bushing **31**. The elastic pin **32**

enhances the pressure reduction for the functional buttons **3**. On the other hand, as shown in Figure 5, around the functional buttons **3**, there are elastic rings **33** that surface is covered by soft protective pad **34**. The elastic ring **33** is held by a multiple number of buffering devices **35**, which can be soft rubber, spring...etc. to alleviate the pressure (spring in the Figure). A multiple sets of molded axles **36** at its bottom all connect to a elastic washer **37** and are covered by a spring **39**, so the elastic ring **33** can float around the top of the slot **38** and avoid jumping off the main unit **1**.

When the user presses the functional button **3**, the buffering device at the bottom of the functional button **3** can provide comfort operatibility by reducing the pressure on user's hands. Besides, when the user's hand presses the functional button **3** to the bottom, the touch action is on the protective pad **34** of the top of the elastic ring **33** around the functional button **3**. It not only enlarges the touch area but also reduces pressure by the multiple number of buffering devices **35** at the bottom of the elastic ring **33** and the pressure reduction mechanism through a number of axles **36** and washers **37**. In this way, the user is under a multiple protection from top to bottom, which includes the buffering device at the bottom of the functional button **3**, the elastic ring **33** moving around in the middle to reduce pressure, and bottom cushion composed of buffering devices **35**, axles **36** and

washers **37**. The invention that reduces the button holding pressure can provide fatigue reduction, blistering prevention and benefits like finger protection from callus and deformation.

Further, as in Figure 6 and Figure 7, the handheld portion of the base **11** of the main unit **1** in the invention is in a proper design of a hollow hole **111**, which may be enclosed by a sticking soft pad **112** with a proper size. Thus, it can provide a cushion air-bag function to fit the user's palm in any shape and any size. Particularly, because the user can hold the unit with a firm grasp by fingers, the grasping force is greatly minimized during use. Such a handheld controller not only has the most comfortability but also reduced holding pressure.

To summarize on the above description, the buffering protective handheld controller provided in the present invention is mainly an unit with a buffering protective configuration for direction button and a number of functional buttons on one side of the main unit. Thus, the user is allowed to have greater touch area and more comfortability when pressing the button. In addition, under a long period of button-pressing time, the user has finger contact with surrounding buffering devices to reduce pressure. Further, the handheld main unit has the rigid plastic base in an appropriate hollow shape, which may be enclosed by a sticking soft pad with a proper size. Thus, it can provide a cushion air-bag function and fits the

user's palm in any shape and any size. Particularly, because the user can hold the unit with a firm grasp by fingers, the grasping force is minimized during use. Such a handheld controller not only has the most comfortability but also reduced holding pressure. Therefore, the invention can provide fatigue reduction, blistering prevention and benefits like finger protection from callus and deformation. This invention is considered to have great industrial applicability and progressiveness.